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Research Article

The Comparison Between Prophylactic Agents for Vestibular Migraine and Its Prescribing Patterns

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Abstract

Introduction: Vestibular migraine (VM) is a neurological condition characterized by recurrent vertigo episodes associated with migraine symptoms. These may include headache, sensitivity to light and sound, and visual aura. Though VM may or may not present with head pain, its impact on balance and motion perception significantly affects quality of life. Diagnosing VM is challenging due to overlap with other vestibular disorders.

Aim: To compare the efficacy and prescribing patterns of various prophylactic agents in reducing attack frequency, improving quality of life, and mitigating vestibular symptoms in patients diagnosed with vestibular migraine.

Objectives: Primary objective is to assess the reduction in episode frequency, duration, and severity, improving the overall quality of life. Secondary objective is to identify the extent of relief from vestibular and headache symptoms, and analyze the prescription trends across agents like Propranolol, Amitriptyline, Topiramate, Sodium Valproate, and Flunarizine.

Methodology: Diagnosis of VM requires clinical evaluation and exclusion of other disorders. Management is personalized, with topiramate, propranolol, and flunarizine providing symptom relief-topiramate being most effective for headaches. Vestibular rehab aids patients with anxiety or motion sensitivity.

Results: VM predominantly affected women (70%), especially in the 28–37 age group, with headache and giddiness as common symptoms. Triggers included sleep deprivation, stress, light sensitivity, and menstruation. Comorbidities like hypertension (8.75%) and diabetes (3.75%) were occasionally present. Prophylactic treatment yielded clinical improvement in 80.9% of cases. Medications such as propranolol (18.75%), amitriptyline (7.5%), and topiramate (3.75%) were commonly used, with combination therapy in 43.75% of patients. Topiramate was effective in reducing headache severity, while propranolol improved quality of life. Post-treatment, 76% of patients experienced mild pain, and 82.5% had reduced dizziness. Vestibular rehabilitation was particularly helpful for those with anxiety. A strong association between magnesium deficiency and migraine frequency was observed.

Conclusion: Diagnosis relies on thorough clinical assessment and exclusion of other vestibular disorders. Effective management involves individualized, multidisciplinary care. Topiramate, propranolol, and flunarizine offer symptom control, with topiramate most effective for headache reduction. Vestibular rehabilitation benefits patients, especially those with anxiety or motion sensitivity. Treatment is tailored to patient-specific factors, though standardized protocols are lacking due to limited large-scale trials.

Keywords: Vestibular Migraine, Prophylactic Therapy, Preventive Pharmacotherapy, Prescribing Patterns, Drug Utilization Review

BACKGROUND:

MIGRAINE: Migraine is a genetically influenced complex neurological disorder characterized by episodes of moderate-to-severe headaches, typically unilateral and frequently accompanied by nausea and heightened sensitivity to light and sound. These episodes, known as migraine attacks, can last from hours to days and significantly impact daily activities and the quality of life.

Symptoms of Migraine:

- Unilateral Headache
- Loss of Appetite
- Nausea
- Photophobia
- Phonophobia

VESTIBULAR MIGRAINE: Vestibular migraine (VM) is a neurological disease that causes vertigo. Vertigo makes you feel dizzy and off balance. Studies show vestibular migraine is the second most common reason why people have vertigo. Other names for a vestibular migraine include migraine-associated vertigo (MAV), migraine-related vestibulopathy and migraine with vertigo.

Symptoms of Vestibular Migraine: Vestibular symptoms, as defined by the Barany ´ Society's Classification of Vestibular Symptoms and qualifying for a diagnosis of vestibular migraine, include:

- spontaneous vertigo including

∗ internal vertigo, a false sensation of self-motion, and

∗ external vertigo, a false sensation that the visual surround is spinning or flowing,

- positional vertigo, occurring after a change of head position,
- visually-induced vertigo, triggered by a complex or large moving visual stimulus
- head motion-induced vertigo, occurring during head motion.

Diagnostic Criteria For Vestibular migraine:

A. At least 5 episodes with vestibular symptoms of moderate or severe intensity, lasting 5min to 72 hours.

B. Current or previous history of migraine with or without aura according to the International Classification of Headache Disorders (ICHD).

C. One or more migraine features with at least 50% of the vestibular episodes:

–headache with at least two of the following characteristics: one sided location, pulsating quality, moderate or severe pain intensity, aggravation by routine physical activity.

– photophobia and phonophobia,

– visual aura.

D. Not better accounted for by another vestibular or ICHD diagnosis.

TREATMENT FOR VESTIBULAR MIGRAINE:

NON- MEDICAL TRAETMENT:

Vestibular Rehabilitation: A physical therapy that uses exercise to treat balance issues, dizziness, vertigo, and other vestibular disorders. The physical therapy is of 5 therapy sessions over 9 weeks.

Caffeine Cessation: Avoiding caffeine and caffeine related products for 4-6 weeks.

MEDICAL TREATMENT:

ABORTIVE TREATMENT- Used for less than 10 days per month

a) Simple analgesics/ NSAID's/ triptans for headache
b) Vestibular sedatives (cyclizine, prochlorperazine, cinnarizine) for vertigo
c) Prochlorperazine, cyclizine, cinnarizine, or domperidone for nausea

PROPHYLACTIC TREATMENT-

MEDICATIONS	DOSE RANGE
Metoprolol	100-200mg Oral
Propranolol	20- 80mg Oral twice daily
Sodium Valproate	200- 100mg Oral twice daily
Topiramate	25- 100mg Oral twice daily
Amitriptyline	10- 150mg Oral at night
Nortriptyline	10-150mg Oral at night
Flunarizine	Initial dose for adults 10mg at night and 5mg for geriatric patients at night
Venlafaxine	37.5-225mg Oral daily
Candesartan	2- 16 mg Oral daily
Erenumab	70-140mg Oral once in a month
Nutraceuticals:	
Riboflavin	400mg Oral daily
Coenzyme-Q10	150mg Oral daily
Magnesium	400- 600mg Oral daily

ACUTE TREATMENT:

MEDICATIONS	DOSE RANGE
Zolmitriptan	2.5mg Oral
Rizatriptan	10mg Oral

AIM: To compare the efficacy and prescribing patterns of various prophylactic agents in reducing attack frequency, improving quality of life, and mitigating vestibular symptoms in patients diagnosed with vestibular migraine.

OBJECTIVES

Primary: To assess reduction in episode frequency, duration, and severity, improving the overall quality of life.

Secondary: To identify the extent of relief from vestibular and headache symptoms, and analyze the prescription trends across agents like Propranolol, Amitriptyline, Topiramate, Sodium Valproate, and Flunarizine.

METHODOLOGY

STUDY TYPE: This is an observational- prospective study.

STUDY DURATION: 6 Months

STUDY SITE: Medicover hospitals (Tertiary care hospital), HI-TEC City, Hyderabad.

SAMPLE SIZE: Not more than 100 patients

ETHICAL APPROVAL: The study would be conducted after taking approval from the Institutional Ethics committee of Medicover Hospital.

INCLUSION CRITERIA:

- Age 18-60 years.
- Gender- Both Males and Female.
- Patients from OP, IP, Emergency departments.
- History of migraine attacks
- History of vertigo attacks
- History of motion sickness
- History of any neurological disorder / medications
- Complaints of photophobia, phonophobia and visual aura
- Headache lasting for hours and effecting the daily activities.
- Patients who provided signed informed consent.

EXCLUSION CRITERIA:

- Patient with other vestibular and neurology disorders.
- Patients with complaints of non-vestibular symptoms such as orthostatic dizziness or panic attacks, Pregnant and lactating women.
- Paediatric patients
- Patients with stroke
- Patients with Benign paroxysmal positional vertigo (BPPV)
- Absence of one or more scales and questionnaires.
- Patients who refused to sign an informed consent form, even though they wished to participated in the study.

TOOLS USED:

Microsoft Excel, Microsoft Word, SPSS Inc.2014

COLLECTION OF DATA:

- The data of vestibular migraine patients will be collected from hospital.
- Collection of the data will be done with clinical visit and telephone via patient case sheet, data
- Collection form and questionnaire respectively.
- The patient would be followed up for every 3 months.
- Informed consent form would be prepared and all participants would be provided written informed
- Consent before enrolment.

PLAN OF WORK:

- Making Protocol for the relevant study.
- Preparation of data collection forms, patient consent forms and relevant questionaries.
- Taking patients demographic data and history.
- Identification of symptoms- duration and severity.
- Identification of patients with headache, giddiness and vertigo.
- Identifying the patients undergoing different treatment patterns.
- Determining the clinical outcome of the treatment given to the patient having vestibular migraine.
- Follow up the patient for 3 months to check the progress.
- Interpretation of results

STATISTICAL METHODS:

Descriptive Analysis:

- Quantitative variables were summarized as mean ± SD (for normally distributed data) and median (IQR) (for non-normally distributed data).
- Categorical variables were presented as frequencies and percentages.
- Data visualization was done using bar charts and pie charts.

Normality Assessment:

- Conducted using histograms, Q–Q plots, and the Shapiro–Wilk test.
- A **p-value > 0.05** indicated normal distribution.

Comparative Analysis:

- For normally distributed quantitative variables:
- Independent t-test (2 groups)
- ANOVA (>2 groups)
- For non-normally distributed quantitative variables:
- Mann–Whitney U test (2 groups)
- Kruskal– Wallis test (>2 groups)

Pre–Post Intervention Analysis:

- Paired t-test used for two time points.
- Repeated Measures ANOVA used for more than two time points.
- Post-hoc tests (LSD/Bonferroni) applied for pairwise comparisons when significant differences were observed.

Categorical Variable Analysis:

- Chi-square test used for comparison between groups.
- Fisher's Exact test applied when sample size <20 or expected cell count <5.

Statistical Significance:

A **p-value < 0.05** was considered statistically significant.

Software Used:

All analyses were performed using IBM SPSS Statistics, Version 22 (SPSS Inc., 2014).

RESULT:

A total of 80 subjects were included in the final analysis.

Table 1: Descriptive analysis of age in study population (N=80)

Age	No of Patients	Percentage
18-27	18	22.50%
28-37	24	30.00%
38-48	14	17.50%
49-58	15	18.75%
59-68	7	8.75%
69-80	2	2.50%
Total	80	100.00%

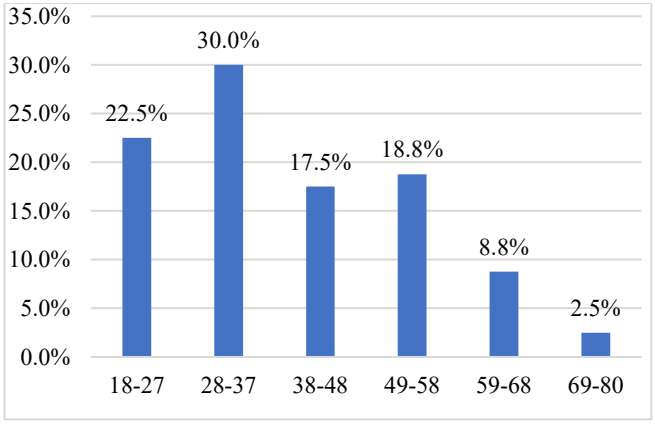


Figure 2: Bar chart of age group in the study population (N=80)

The table presents data on the distribution of 80 patients categorized by age groups. The highest proportion of patients falls within the 28-37 age group, accounting for 30% (24 patients). This is followed by the 18-27 age group with 22.5% (18 patients) and the 49-58 age group with 18.75% (15 patients).

The 38-48 age group contributes 17.5% (14 patients), while the 59-68 and 69-80 age groups show the lowest numbers, with 8.75% (7 patients) and 2.5% (2 patients) respectively.

Table 2: Descriptive analysis of gender in the study population (N=80)

Gender	No of Patients	Percentage
Male	24	30.00%
Female	56	70.00%
Total	**80**	**100.00%**

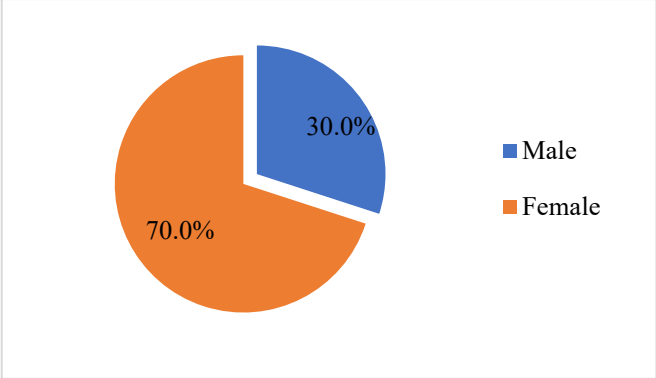


Figure 1: Pie chart of gender in the study population (N=80)

This table shows the gender-wise distribution of 80 patients. Out of the total: 56 patients (70%) are female, 24 patients (30%) are male. The data indicates a higher prevalence of female patients, who make up the majority (70%) of the total sample. This suggests that females are more commonly represented in this patient group compared to males.

Table 3: Descriptive analysis of chief complaints in the study population (N=80)

CHIEF COMPLAINTS	NO. OF PATIENTS	PERCENTAGE (%)
Headache	80	100%
Giddiness	80	100%

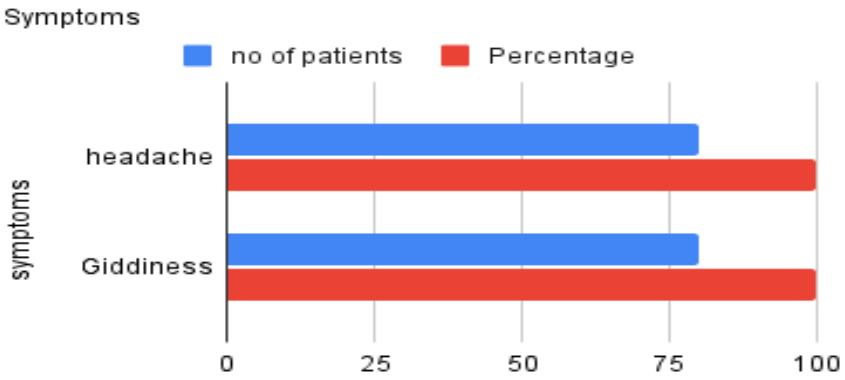


Figure 3: Bar graph of chief complaints in study population (N=80)

The table highlights the chief complaints reported by all 80 patients in the study: Headache was reported by 100% (80 patients). Giddiness was also reported by 100% (80 patients). All patients in the study presented with both headache and giddiness as their primary complaints. This indicates a consistent symptom pattern across the entire sample, suggesting a common underlying condition or similar clinical presentation among the patients.

Table 4: Descriptive analysis of other complaints in the study population

OTHER COMPLAINTS	NO. OF PATIENTS	PERCENTAGE
Nausea	13	21.67%
Vomiting	08	13.33%
Neck pain	11	18.33%
Photophobia	09	15.00%
Phonophobia	13	21.67%
Weight Gain	01	1.67%
Sleep Disturbance	05	8.33%
TOTAL	**60**	**80 (100%)**

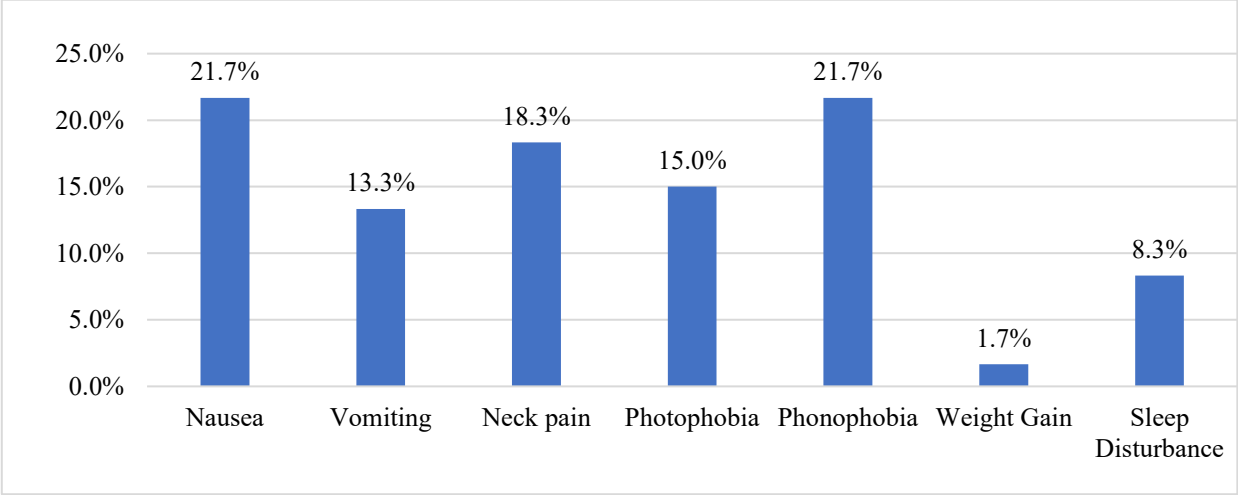


Figure 4: Bar chart of other complaints in the study population

This table outlines additional complaints experienced by 60 out of the 80 patients (100% of the total sample). The most commonly reported other complaints include: Nausea and Phonophobia, each reported by 13 patients (21.67%). Neck pain by 11 patients (18.33%). Photophobia by 9 patients (15.00%). Vomiting by 8 patients (13.33%). Sleep disturbance by 5 patients (8.33%). Weight gain was the least reported, by 1 patient (1.67%). A significant portion of patients (75%) experienced additional complaints alongside the primary symptoms. Nausea and phonophobia were the most frequently reported, indicating common associated symptoms. The variety of other complaints suggests a complex or multifactorial clinical presentation in a majority of the patients.

Table 5: Descriptive analysis of comorbidities in the study population (N=13)

Comorbidities	No of patients	Percentage
Diabetes Mellitus	3	23.08%
Hypertension	7	53.85%
Hypothyroidism	1	7.69%
Anaemia	1	7.69%
Insomnia	1	7.69%

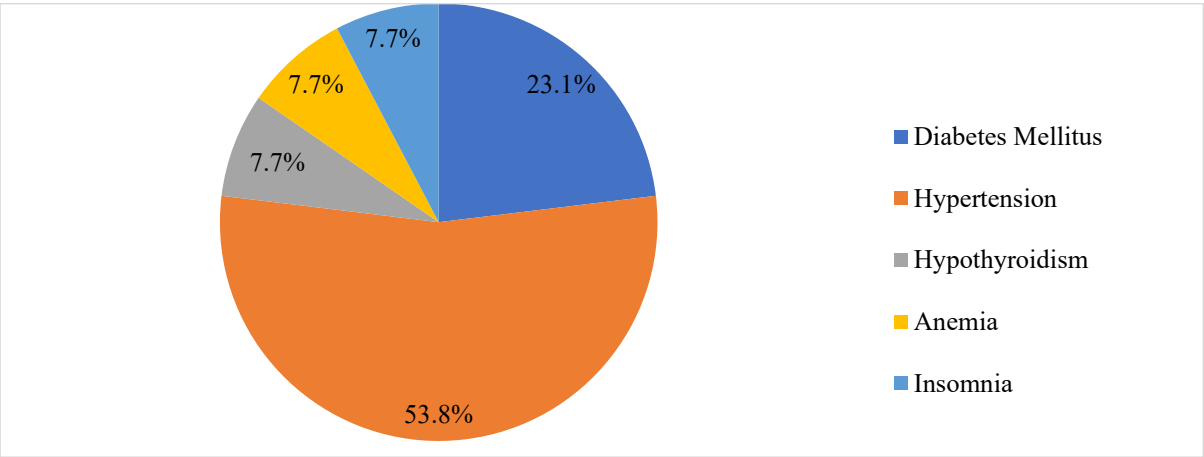


Figure 5: Pie chart of comorbidities in the study population (N=13)

This table presents the presence of comorbid conditions among the 80 patients. A total of 13 patients (16.25%) had at least one comorbidity. The distribution is as follows: Hypertension was the most common, found in 7 patients (53.85%). Diabetes Mellitus was present in 3 patients (23.08%). Insomnia, Hypothyroidism, and Anaemia were each reported in 1 patient (7.69%). A minority of the patient population (16.25%) had comorbid conditions, with hypertension and diabetes mellitus being the most prevalent. The presence of these comorbidities may have clinical relevance in the management and outcomes of the patients' primary complaints.

Table 6: Descriptive analysis of drugs prescribed (according to prescribing patterns) in the study population (N=37)

Drugs Prescribed	No of patients	Percentage
Propranolol	15	40.54%
Topiramate	3	8.11%
Amitriptyline	6	16.22%
Di valproate Sodium	2	5.41%
Naxdom	5	13.51%
Flunarizine	1	2.70%
Cinnarizine	1	2.70%
Betahistine	3	8.11%
Metoprolol	1	2.70%

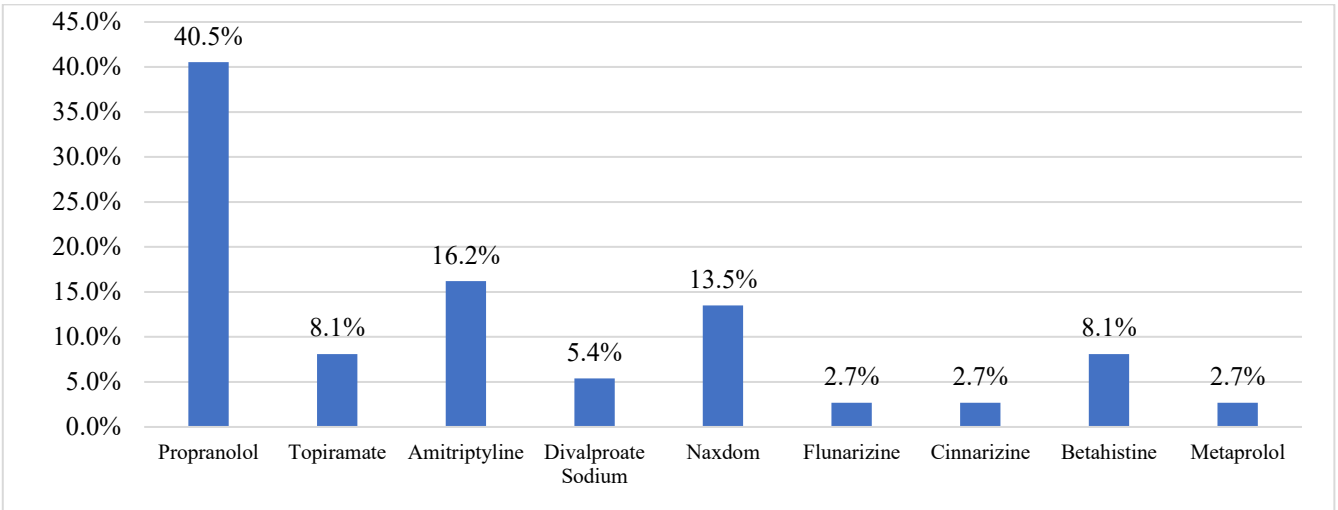


Figure 6: Bar chart of drugs prescribed in the study population (N=37)

The analysis reveals that Propranolol emerged as the most predominantly prescribed drug, constituting 40.54% of the total prescriptions, underscoring its role as a primary therapeutic agent owing to its established efficacy, tolerability, and safety in prophylactic management. Amitriptyline ranked as the second most commonly prescribed medication, accounting for 16.22%, followed by Naxdom (13.51%) and Topiramate (8.11%), which were likely employed as adjunctive or alternative options tailored to patient-specific clinical profiles and therapeutic responses. Betahistine, prescribed to 8.11% of the study population, appears to have been used primarily for patients presenting with concomitant vestibular or vertigo-related symptoms. Conversely, Di valproate sodium (5.41%), Flunarizine (2.70%), Cinnarizine (2.70%), and Metoprolol (2.70%) demonstrated comparatively lower prescription frequencies, indicating their selective use in particular clinical contexts. Overall, the prescribing trend reflects a pronounced inclination toward beta-blockers and tricyclic antidepressants, reaffirming their clinical prominence and continued therapeutic relevance in the pharmacological management of the studied condition.

Table 7: Descriptive analysis of patients receiving combination therapy (Dual therapy) in the study population (N= 31)

COMBINATION THERAPY	NO. OF PATIENTS	PERCENTAGE (%)
Propranolol + Amitriptyline	3	9.67%
Propranolol + Flunarizine	1	3.22%
Propranolol + Divalporate Sodium	5	16.12%
Propranolol + Naproxen	7	22.58%
Cinnarizine + Betahistine	2	6.45%
Naproxen + Flunarizine	3	9.67%
Divalporate Sodium + Betahistine	2	6.45%
Propranolol + Topiramate	3	9.67%
Amitriptyline+ Betahistine	1	3.22%
Betahistine+ Naproxen	1	3.22%
Topiramate + Amitriptyline	1	3.22%
Propranolol + Betahistine	2	6.45%

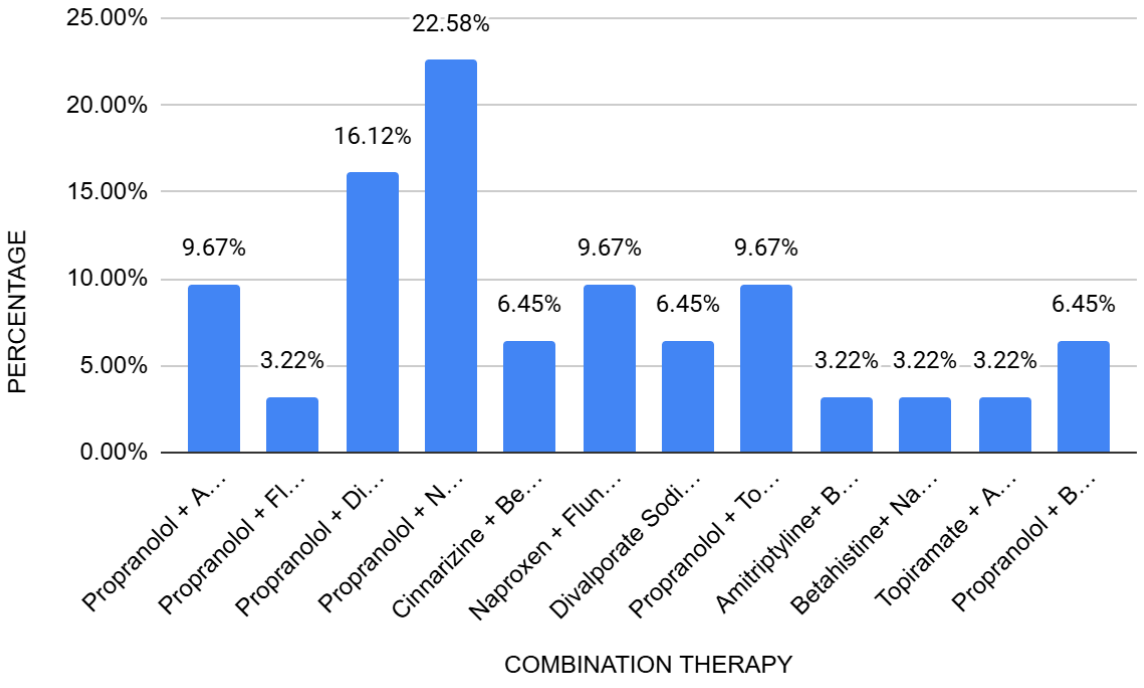


Figure 7: Bar chart of combined therapy (dual therapy) prescribed in the study population (N= 31)

The analysis of combination therapy patterns among the study population revealed that Propranolol + Naproxen was the most frequently prescribed regimen (22.58%), indicating its preferred use for combined prophylactic and symptomatic management. This was followed by Propranolol + Divalproate Sodium (16.12%), suggesting its role in enhancing prophylactic efficacy through complementary mechanisms. Combinations such as Propranolol + Amitriptyline and Naproxen + Flunarizine (each 9.67%) were also commonly utilized, reflecting their clinical relevance in individualized therapy. Moderate use was observed for combinations involving Betahistine with agents like Cinnarizine, Propranolol, and Divalproate Sodium (each 6.45%), likely addressing vestibular symptoms alongside migraine control. Less frequently prescribed combinations, including Propranolol + Flunarizine, Amitriptyline + Betahistine, Betahistine + Naproxen, and Topiramate + Amitriptyline (each 3.22%), indicate selective use in specific clinical contexts. Overall, the data highlight a predominant preference for Propranolol-based combinations, underscoring its central role in combination therapy regimens within the study population.

Table 8: Descriptive analysis of patients receiving combination therapy (Triple therapy) in the study population (N= 4)

Triple Combination	NO. OF PATIENTS	PERCENTAGE (%)
Propranolol+ Betahistine+ Naproxen	01	25%
Naproxen + Amitriptyline + Betahistine	01	25%
Propranolol + Betahistine + Flunarizine	01	25%
Propranolol + Naproxen + Flunarizine	01	25%

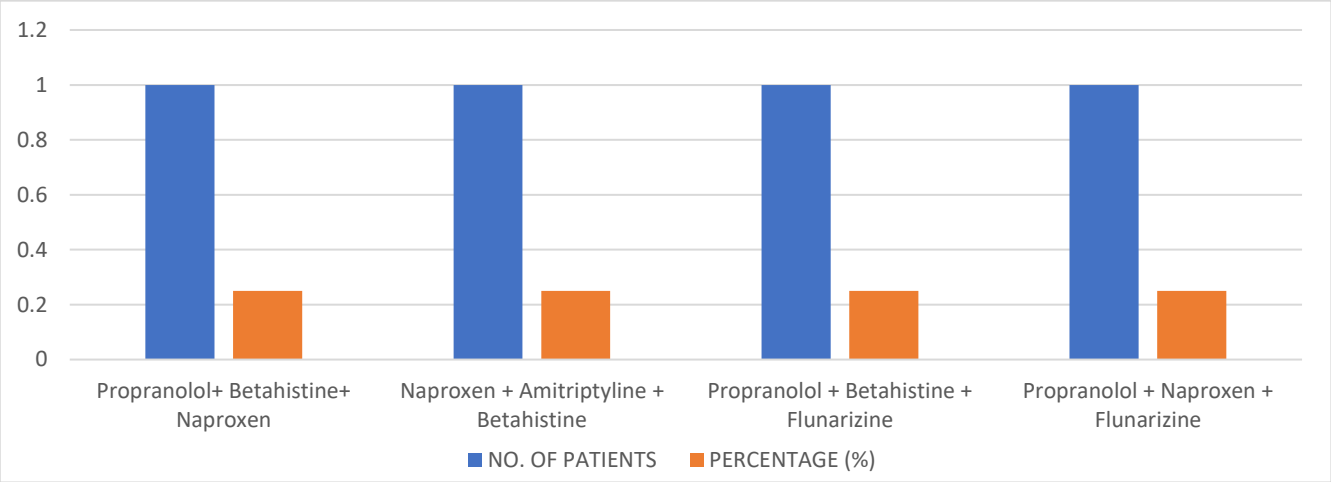


Figure 8: Bar chart of combined therapy (triple therapy) prescribed in the study population (N= 4)

The table illustrates the prescribing pattern of triple drug combinations within the study population. Each combination—Propranolol + Betahistine + Naproxen, Naproxen + Amitriptyline + Betahistine, Propranolol + Betahistine + Flunarizine, and Propranolol + Naproxen + Flunarizine—was administered to one patient each (1.25%), reflecting their limited utilization. The restricted use of these regimens suggests that triple therapy was considered primarily in patients with inadequate response to monotherapy or dual therapy, or in those presenting with multifactorial symptom profiles. The repeated inclusion of Propranolol and Naproxen across several combinations highlights their central role in providing both prophylactic and symptomatic control.

Table 9: Distribution Of Patients Based On Prescribed Drugs

PRESCRIBED DRUGS	NO. OF PATIENTS	PERCENTAGE (%)
Propranolol	15	51.7%
Topiramate	03	10.34%
Amitriptyline	06	20.68%
Di Valproate Sodium	02	6.89%
Flunarizine	01	3.44%
Sodium Valproate	02	6.89%
Magnesium sulphate	0	0

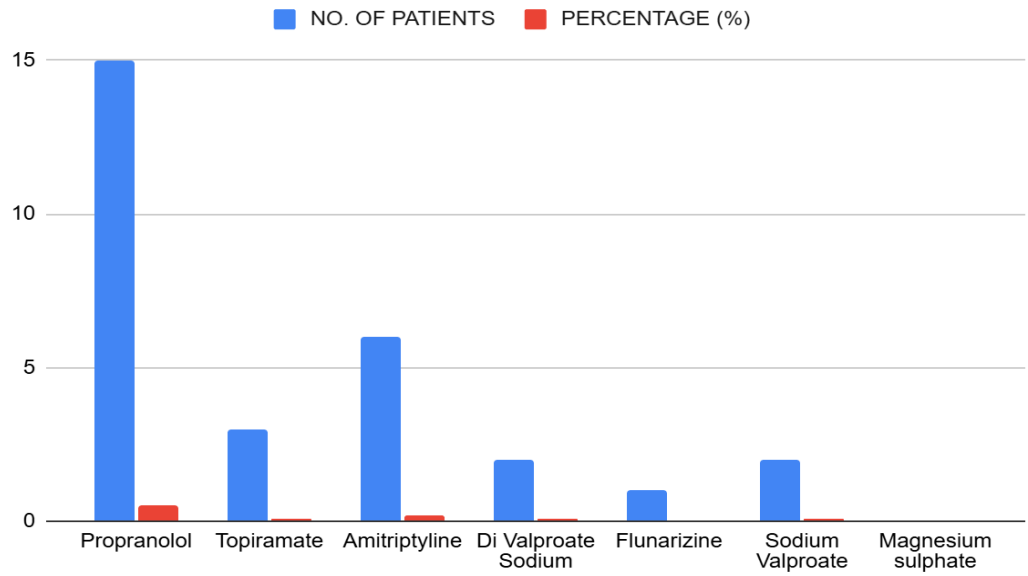


Figure 9: Bar chart of prescribed drugs in the study population (N= 29)

The findings indicate that Propranolol was the most commonly prescribed medication (51.7%), emphasizing its status as the primary choice for migraine prophylaxis. Amitriptyline (20.68%) and Topiramate (10.34%) were also frequently utilized, underscoring their effectiveness as alternative or adjunctive options. Di valproate sodium and Sodium valproate, each prescribed to 6.89% of patients, were employed in cases requiring additional therapeutic control. Flunarizine showed the lowest prescription rate (3.44%), and Magnesium sulphate was not prescribed (0%). Overall, the prescription pattern reflects a preference for beta-blockers, followed by antidepressants and anticonvulsants, in managing migraine cases.

Table 10: Descriptive analysis of history of migraine in the study population (N= 80)

HISTORY OF MIGRAINE	FREQUENCY	PERCENTAGE
Present	16	20.00%
Absent	64	80.00%

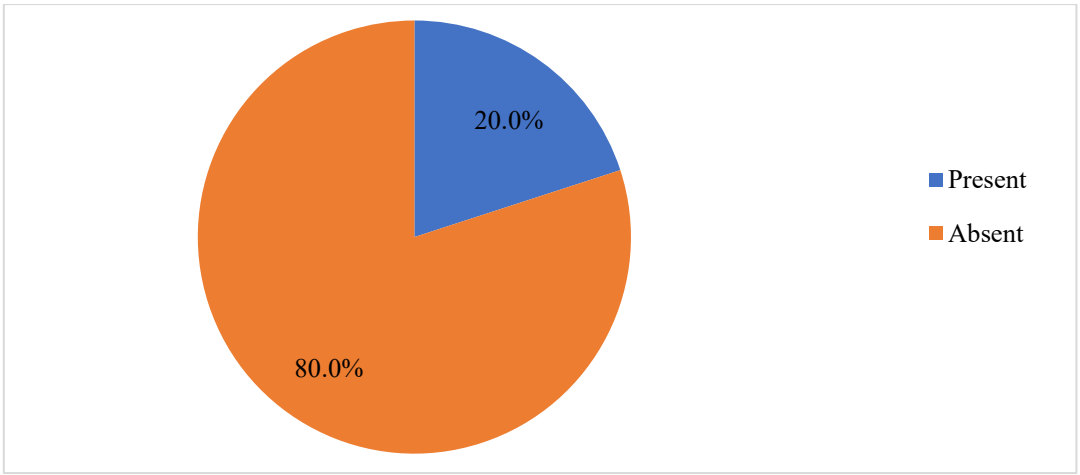


Figure 10: Pie- chart of descriptive analysis of history of migraine in the study population

The table presents data on the presence of migraine history among the study participants. A total of 16 participants (20.00%) had a documented history of migraine, while 64 participants (80.00%) reported no such history. These findings indicate that most individuals in the study population were not previously affected by migraine, reflecting a comparatively low occurrence of migraine history within the cohort.

Table 11: Descriptive analysis of history of giddiness in the study population (N=80)

History of Giddiness	No of patients	Percentage
Present	9	11.25%
Absent	71	88.75%

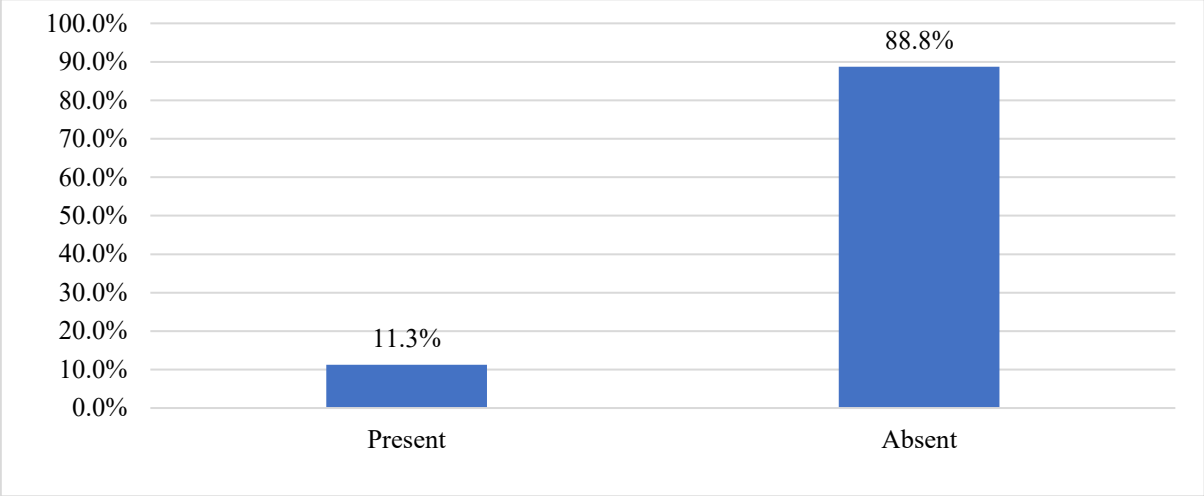


Figure 11: Bar chart of history of giddiness in the study population (N=80)

The table represents the distribution of giddiness history among the study population. Among the total participants, 9 individuals (11.25%) reported experiencing giddiness in the past, whereas 71 individuals (88.75%) had no prior history of giddiness. This observation indicates that the majority of the participants did not have a previous history of giddiness, reflecting a low prevalence of this condition within the study group.

Table 12: Descriptive analysis of symptoms in a study population: Pre and Post Treatment Comparison.

CHIEF COMPLAINTS	PRE-TREATMENT	2- MONTHS REVIEW(n)
Headache	514	212
Giddiness	4519	1882

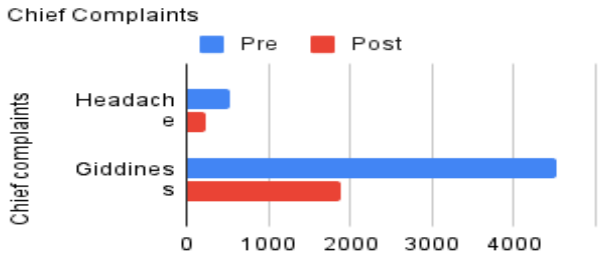


Figure 12: Bar chart of descriptive analysis of symptoms: pre and post treatment comparison.

A comparative analysis of patient complaints before and after treatment over a two-month period shows a significant reduction in reported symptoms:

- Headache cases dropped from 514 to 212, reflecting a 58.8% reduction.
- Giddiness cases decreased from 4519 to 1882, indicating a 58.4% reduction.

This suggests that treatment was effective in alleviating both symptoms substantially within two months.

Table 13: Descriptive analysis of duration of headache in a study population: comparison of pre and post treatment

DURATION OF HEADACHE	PRE-TREATMENT	2 MONTHS REVIEW
Few seconds	0	0
Few minutes	0	05
Few hours	03	03
One day	02	05
Few days	05	0
>1day	05	0
Few months	02	0

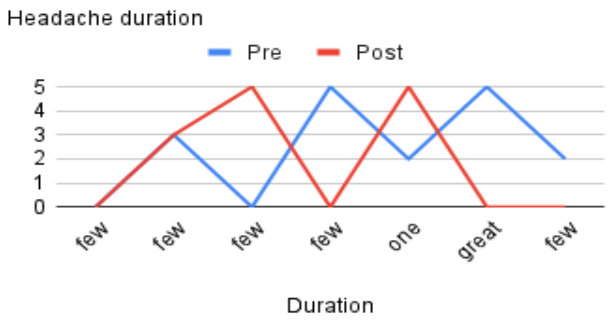


Figure 13: Line graph chart of descriptive analysis of duration of headache: Pre and post treatment.

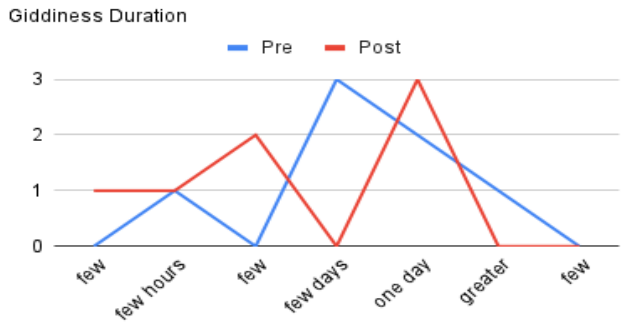


Figure 14: Line graph chart of descriptive analysis of duration of headache: Pre and post treatment.

The distribution of headache duration before treatment and at a two-month follow-up.

Pre-treatment data show a predominance of prolonged headache episodes lasting from a few days to several months. In contrast, the two-month review indicates a marked reduction in long-duration headaches, with most patients experiencing shorter episodes lasting a few minutes to one day. This shift suggests a favourable treatment response in terms of reduced headache duration.

The table shows a clear shift from longer-lasting giddiness episodes before treatment to shorter, transient episodes at the 2-month review. Pre-treatment, prolonged durations such as few days and one day were common, whereas at follow-up, these categories dropped to zero. Conversely, short-duration episodes (few seconds and few minutes) increased, indicating symptomatic improvement and reduced persistence of giddiness over time. Overall, the findings suggest a positive treatment response.

Table 14: Descriptive analysis of duration of giddiness in a study population: Pre and post treatment.

DURATION OF GIDDINESS	PRE-TREATMENT	2 MONTHS REVIEW
Few seconds	0	01
Few minutes	0	02
Few hours	01	01
One day	02	03
Few days	03	0
>1 day	01	0
Few months	0	0
P Value	**<0.001**	

Table 15: Descriptive analysis of triggering factors in a study population (N= 80)

Triggering Factors	No of patients	Percentage
Lack of sleep	22	27.50%
Stress	19	23.75%
Light intensity	13	16.25%
Menstruation	12	15.00%
Caffeine intensity	9	11.25%
Noise	3	3.75%
Smell	1	1.25%
Crying	1	1.25%

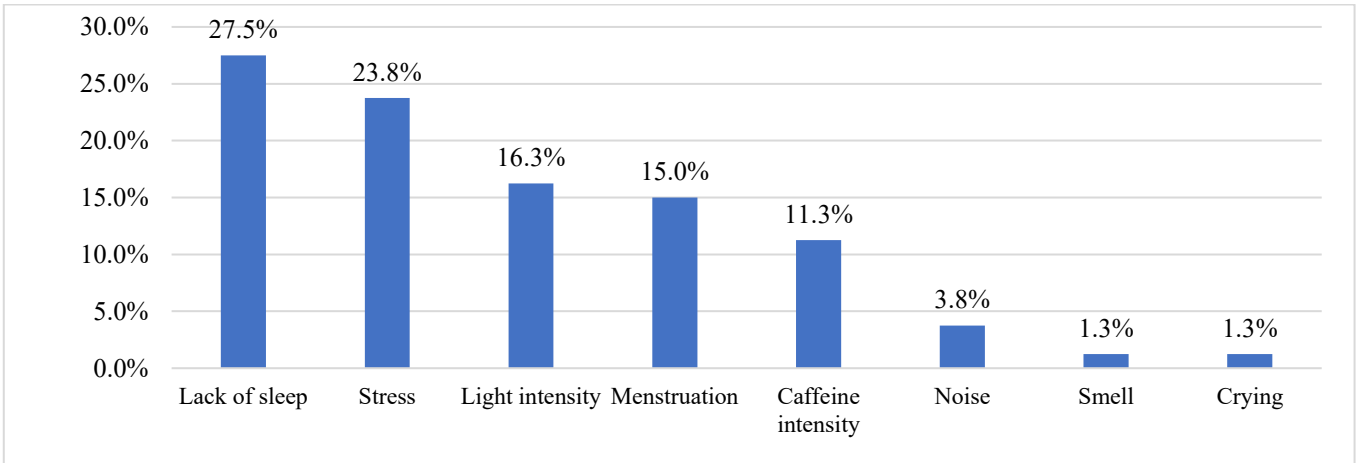


Figure 15: Bar chart of triggering factors in the study population (N=80)

The findings indicate that lack of sleep and stress represent the predominant triggering factors, underscoring the substantial impact of lifestyle elements on symptom initiation. Sensory stimuli such as light intensity and hormonal influences like menstruation were also commonly reported. Factors including caffeine consumption, crying, noise, and smell were identified less frequently but remain relevant as individualized triggers. Collectively, these results demonstrate that symptom exacerbation is influenced by a combination of physiological, lifestyle, and environmental factors.

Table 16: Descriptive analysis of pain score pre-treatment in study population (N=80)

PAIN SCORE	NO. OF PATIENTS	PERCENTAGE (%)
0-2	01	1.25%
2-4	06	7.50%
4-6	35	43.75%
6-8	24	30%
8-10	14	17.50%

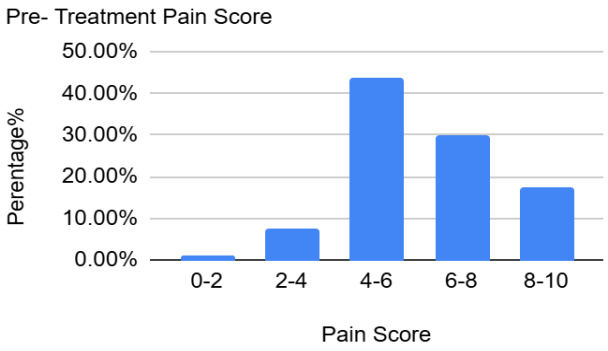


Figure 16: Bar chart of the descriptive analysis of pain score in study population: Pre- treatment.

The distribution of pre-treatment pain scores among the 80 patients indicates that the largest proportion (43.75%) experienced moderate pain (scores 4–6). This was followed by 30% of patients who reported moderately severe pain (scores 6–8). Severe pain (scores 8–10) was noted in 17.5% of the cohort. Mild pain (scores 2–4) was observed in 7.5% of patients, while only one participant (1.25%) reported minimal or no pain (scores 0–2). Overall, 91.25% of patients presented with moderate to severe levels of pain (scores 4–10), underscoring the need for effective pain management before the initiation of therapy.

Table 17: Descriptive analysis of pain score: post treatment in study population (N= 80)

PAIN SCORE	NO. OF PATIENTS	PERCENTAGE (%)
0-2	27	33.75%
2-4	34	42.30%
4-6	19	23.75%
6-8	0	0%
8-10	0	0%

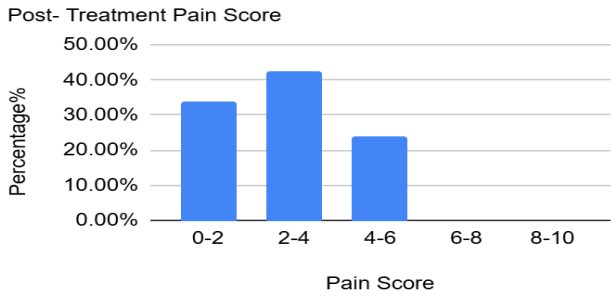


Figure 17: Bar chart of descriptive analysis of pain score in study population- post treatment.

The table demonstrates that the largest proportion of patients (42.30%) reported mild pain within the 2–4 score range, followed by 33.75% who experienced minimal pain (scores 0–2). Additionally, 23.75% of the cohort presented with moderate pain (scores 4–6). Notably, no patients recorded pain scores within the 6–8 or 8–10 ranges, indicating an absence of severe or very severe pain in the study sample. These findings suggest that the overall pain burden among patients was predominantly mild to moderate.

Table 18: Descriptive analysis of pain score: pre and post pain score in study population (N=80)

Pain Score	Pre-Treatment	Post- Treatment
0-2	01	27
2-4	06	34
4-6	35	19
6-8	24	0
8-10	14	0

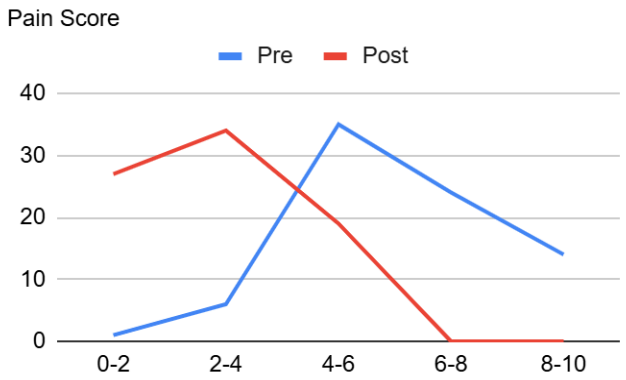


Figure 18: Line graph of descriptive analysis of pain score: pre and post pain score in study population (N= 80)

After treatment, there is a noticeable improvement in the distribution of pain scores. The majority of patients had moderate to severe pain prior to intervention; the largest percentage reported pain scores of 4–6 (35 patients), followed by 6–8 (24 patients) and 8–10 (14 patients); only a small percentage reported mild pain (2–4: 6 patients; 0–2: 1 patient). The majority of patients reported light pain levels (2–4: 34 patients; 0–2: 27 patients), a decrease in moderate pain (4–6: 19 patients),

and there were no patients in the severe pain categories (6–8 and 8–10), according to the post-treatment assessment. Overall, the table shows a considerable therapeutic impact with a significant decrease in pain severity following therapy.

Parameter	Mean ± SD	Median	Minimum	Maximum	95% C.I	
					Lower	Upper
Pre-Pain Score	6.43 ± 1.91	5.00	2.00	10.00	6.00	6.85
Post Pain Score	2.9 ± 1.74	3.00	0.00	6.00	2.51	3.29

The descriptive statistics show that after therapy, pain scores significantly decreased. With a mean of 6.43 ± 1.91, a median of 5.00, and a broad range of 2.00 to 10.00, the pre-treatment pain score primarily indicated moderate to severe pain at baseline. The post-treatment pain score, on the other hand, showed a move toward low pain levels, with a mean of 2.9 ± 1.74, a median of 3.00, and a smaller range of 0.00 to 6.00. The mean pain score's 95% confidence interval likewise showed a distinct decline, falling from 6.00–6.85 before treatment to 2.51–3.29 after treatment, with no overlap indicating a clinically significant improvement. Overall, the chart shows that after the intervention, pain intensity significantly and consistently decreased.

Table 19: Comparison of mean pain score in Pre-treatment and post follow-up period (N= 80)

Parameter	(Mean± SD)		Mean Difference	95% CI of mean difference		P-value
	Pre	Post		Lower	Upper	
Pain score	6.43 ± 1.91	2.9 ± 1.74	3.53	3.21	3.84	<0.001

Following the intervention, the mean pain score significantly decreased, going from 6.43 ± 1.91 at baseline to 2.90 ± 1.74 after therapy. This resulted in an improvement in pain intensity that was clinically significant, with a mean difference of 3.53. The accuracy and dependability of the observed effect are confirmed by the 95% confidence interval for the mean difference (3.21–3.84) excluding the null value. Furthermore, the difference was highly statistically significant ($p < 0.001$), indicating that the intervention was successful in considerably lowering the study population's pain scores.

Table 20: Descriptive analysis of DHI Score pre-treatment DHI score in study population (N=80).

DHI SCORE PRE-TREATMENT	NO. OF PATIENTS	PERCENTAGE (%)
<16	0	0%
16-34	2	2.50%
35-53	38	47.50%
54+	40	50%

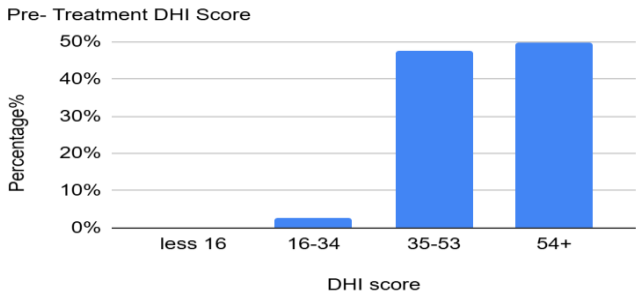


Figure 19: Bar chart of descriptive analysis of DHI in study population: Pre-treatment.

The distribution of patients based on pre-treatment Dizziness Handicap Inventory (DHI) scores is shown in the table. There were no patients in the category of minimal handicap (<16). There were only two individuals (2.5%) with mild handicap scores between 16 and 34. 38 individuals, or 47.5% of the study group, were classified as having a moderate handicap (35–53). With DHI scores of 54 or higher, the greatest percentage of patients—40, or 50%—showed severe perceived handicap. Overall, the results show that most patients had moderate to severe dizziness-related handicap before starting treatment, indicating a significant baseline functional and psychosocial burden of the disease.

Table 21: Descriptive analysis of DHI Score post-treatment DHI score in study population (N=80).

DHI SCORE POST-TREATMENT	NO. OF PATIENTS	PERCENTAGE (%)
<16	25	31.25%
16-34	41	51.25%
35-53	14	17.50%
54+	0	0%

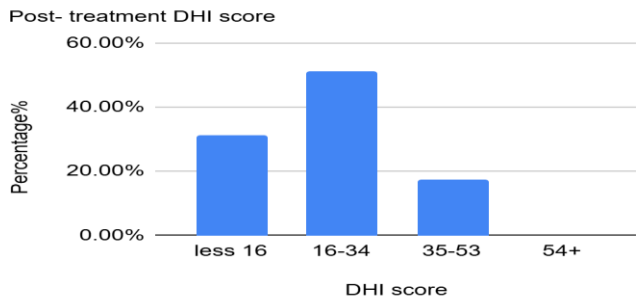


Figure 20: Bar chart of descriptive analysis of DHI in study population: Post-treatment.

The distribution of patients based on their Dizziness Handicap Inventory (DHI) ratings after therapy is shown in the table. With DHI scores below 16, a significant percentage of patients 25, or 31.25% reported minor disability. Of the patients, 41 (51.25%) were classified as having a light handicap (16–34). With scores between 35 and 53, a lower percentage of patients 14, or 17.5% continued to have a moderate disability. Interestingly, after treatment, none of the patients fell into the severe disability category (≥54). Overall, these results show a considerable reduction in dizziness-related handicap and its influence on day-to-day functioning following therapy, with a notable shift toward lower DHI score categories.

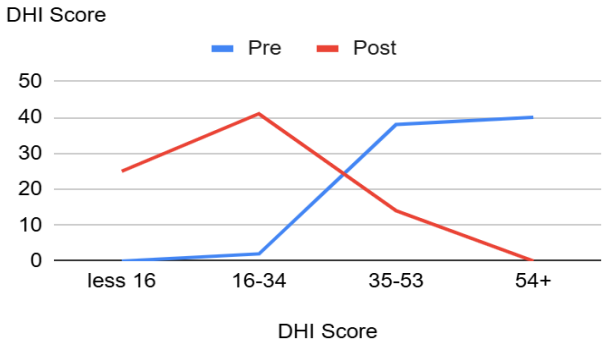


Figure 21: Line graph of descriptive analysis of pain score: pre and post pain score in study population (N= 80)

Table 22: Descriptive analysis of DHI score: pre and post DHI in study population (N=80)

DHI Score	PRE-TREATMENT	2 MONTHS REVIEW(n)
<16	0	25
16-34	2	41
35-53	38	14
54+	34	0

The distribution of patients based on their pre-treatment and two-month follow-up Dizziness Handicap Inventory (DHI) scores is shown in the table. Only two patients had mild disability (16–34), and none had scores below 16. At baseline, the majority of patients showed moderate to severe dizziness-related disability, with 38 in the 35–53 score range and 34 in the ≥54 category. There was a noticeable change toward lower DHI ratings at the two-month evaluation. The largest group (41 patients) fell within the mild disability range (16–34), and a significant portion of patients (25) received scores <16, indicating minimal or no perceived handicap. Notably, there were no patients left in the severe disability category, and the number of patients with intermediate disability (35–53) dropped significantly to 14. Surprisingly, the results show that DHI scores significantly improved over the course of the two-month period, indicating a marked decrease in functional, emotional, and physical impairment linked to dizziness after therapy.

Parameter	Mean ± SD	Median	Minimum	Maximum	95% C.I	
					Lower	Upper
DHI Pre	56.49 ± 14.23	53.00	32.00	96.00	53.32	59.65
DHI Post	23.53 ± 11.54	22.00	4.00	48.00	20.96	26.09

The table describes changes in Dizziness Handicap Inventory (DHI) scores before and after the intervention. At baseline, participants reported a considerable burden of dizziness, with a mean DHI score of 56.49 ± 14.23. The median score of 53.00 and a wide range (32.00–96.00) suggest that many individuals experienced moderate to severe limitations in their daily activities. The narrow 95% confidence interval (53.32–59.65) indicates that this level of handicap was fairly consistent across the study group.

Following the intervention, DHI scores showed a clear improvement. The mean score decreased to 23.53 ± 11.54, and the median value dropped to 22.00, reflecting a shift toward mild dizziness-related difficulties. Scores after treatment ranged from 4.00 to 48.00, indicating that most participants experienced noticeable relief. The 95% confidence interval (20.96–26.09) further supports the reliability of this improvement.

Overall, the reduction in DHI scores from pre- to post-treatment suggests a meaningful improvement in how patients perceived the impact of dizziness on their everyday lives, highlighting the positive effect of the intervention.

Table 23: Comparison of mean pain score in Pre-treatment and post follow-up period (N= 80)

Parameter	(Mean± SD)		Mean Difference	95% CI of mean difference		P-value
	Pre	Post		Lower	Upper	
DHI score	56.49 ± 14.23	23.53 ± 11.54	32.96	29.35	36.57	<0.001

The mean Dizziness Handicap Inventory (DHI) scores prior to and during the intervention are compared in the table. The individuals' mean DHI score at baseline was 56.49 ± 14.23, which indicates a moderate to severe handicap linked to dizziness. The mean DHI score significantly dropped to 23.53 ± 11.54 after the intervention, indicating a significant decrease in perceived impairment. With a 95% confidence interval spanning from 29.35 to 36.57, the mean difference between pre- and post-treatment scores was 32.96, suggesting a consistent and clinically significant improvement across participants. The observed decline in DHI scores was unlikely to be the result of chance, given the difference was statistically highly significant ($p<0.001$). Collectively, these results show that after the intervention, dizziness-related quality of life significantly improved.

DISCUSSION:

Vestibular migraine (VM) remains an underdiagnosed cause of episodic vertigo, yet it exerts a substantial impact on functional ability and quality of life. In this prospective observational study, VM was more prevalent among females and predominantly affected young to middle-aged adults, findings that are consistent with previous reports and suggest a possible hormonal and gender-related predisposition.

Headache and giddiness were universally present, confirming their role as hallmark features of VM. Associated symptoms such as nausea, phonophobia, photophobia, and neck pain were frequently reported, reflecting the multisystem involvement characteristic of migraine disorders. Commonly identified triggers, including sleep deprivation, stress, light exposure, and menstruation, further highlight the influence of lifestyle and environmental factors in symptom exacerbation.

Propranolol emerged as the most frequently prescribed prophylactic agent, followed by amitriptyline and topiramate, either as monotherapy or in combination. This prescribing pattern reflects real-world clinical practice, favouring agents with established efficacy and tolerability. The frequent use of combination therapy underscores the need for individualized treatment strategies in patients with complex or persistent symptoms.

Therapeutic outcomes demonstrated significant clinical improvement. Both headache and giddiness showed marked reductions in frequency, duration, and severity following treatment. Pain scores improved significantly, with a shift from predominantly moderate–severe pain at baseline to mild pain at follow-up, and complete resolution of severe pain categories. In parallel, Dizziness Handicap Inventory (DHI) scores showed a substantial and statistically significant decline, indicating meaningful improvement in functional, emotional, and physical domains of daily life.

The observed benefit of vestibular rehabilitation, particularly in patients with anxiety or motion sensitivity, supports the role of non-pharmacological interventions as an important adjunct to medical therapy. However, the lack of standardized treatment protocols and limited high-quality randomized trials continues to challenge uniform clinical decision-making.

CONCLUSION:

Vestibular migraine is a common yet frequently underrecognized disorder that significantly impairs quality of life. This study demonstrates that individualized prophylactic therapy—most commonly involving propranolol, amitriptyline, topiramate, and combination regimens—results in significant improvement in headache severity, dizziness, and dizziness-related disability.

The marked reduction in pain and DHI scores highlights the effectiveness of a personalized, multidisciplinary management approach incorporating pharmacological treatment, vestibular rehabilitation, and lifestyle modification. Early recognition and tailored therapy can lead to meaningful symptom control and functional recovery. Further large-scale, controlled studies are warranted to establish standardized treatment guidelines and optimize long-term outcomes in patients with vestibular migraine.

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